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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/572,779	03/21/2006	Hiroyuki Tanaka	Q92902	9453

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EXAMINER	
HU, HENRY S	

ART UNIT	PAPER NUMBER
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/572,779	TANAKA ET AL.	
	Examiner	Art Unit	
	HENRY S. HU	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *Election of April 24, 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5* is/are pending in the application.

4a) Of the above claim(s) *1-4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☒ Claim(s) *1-5* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Non-Final Office Action is in response to **Election** filed on April 24, 2009, which is in response to Examiner's Restriction requirement filed on March 20, 2009. **Applicant's Election of Group II (Claim 5) without traverse** is acknowledged. As discussed earlier, Applicants' **Pre-Amendment** and **two IDS** (1 page each) have been filed so far. Claim 4 is amended, while no claim is cancelled or added. Such pre-amendment is used to only eliminate improper multiple dependency on Claim 4. Examiner **accepts Applicants' one drawing sheet with Figures 1-2** filed on March 21, 2006 with this application (brief description is on page **4**). **Claims 1-5** with **two** independent claims (Claims 1 and 5) is now pending, while non-elected Claims 1-4 (Group I) are withdrawn from consideration. An action follows. (See no "X" or "Y" reference in international search report in Applicants' priority document **PCT/JP2004/013743)**

Specification

2. The disclosure is objected to because of the following informalities:

On **page 31** at line 19, **page 32** at line 15 and maybe throughout specification, the use of swelling calculation formula such as "(D-C)/Cx100(%)" may be improper. Rewriting to a clarified formula such as **"((D-C)/C) x 100(%)"** may be needed. Otherwise, it may mean other calculation, which is quite different from the actual one.

Claim Objections

3. **Claim 5 is objected to** because of the following informalities:

On **Claim 5**, the writing as "a process for preparing **a perfluoroelastomer seal material** comprising a step of treating with **a solvent having at least 50 % of a swelling rate** based on **said molded article, when said molded article is immersed at 60°C for 70 hours**" may be improper. It is unclear whether the solvent's swelling rate of "at least 50 %" is applied to the starting "molded article" or the final "solvent-treated seal material". **Rewriting is needed** for clarification.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. The limitation of parent **Claim 5** in present invention relates to ***a process for preparing a perfluoroelastomer seal material***. *Said process "comprises"* ***a step of treating with a solvent having at least 50 % of a swelling rate*** *based on said molded article, when said molded article is* ***immersed at 60°C for 70 hours***.

6. **Claim 5 is rejected** under 35 U.S.C. 103(a) as being unpatentable over **Saito** et al. (EP 1,209,175 A1) or **Kawasaki** et al. (US 7,309,743 B2) in view of a combination of **four** references including **Anolick** et al. (US 5,478,905), **Anolick** et al. (US 5,637,663), **Amin** et al. (US 5,444,116) and **Amin** et al. (US 5,461,107).

Regarding "the one-step process of **preparing a perfluoroelastomer seal material**" limitation of parent **Claim 1**, it is achieved by **immersing the molded article in a specific solvent at 60°C for 70 hours**, wherein said solvent has a specific property such as **at least 50 % of a swelling rate based on said molded article**. Open language "comprising" is applied to the process of parent Claim 1.

Saito and **Kawasaki** in combination or alone has already disclosed the preparation of some molded seal or seal-like articles, which are amine-resistant (see Saito at abstract; paragraphs 0087 and 0046-0049; see Kawasaki at abstract; Tables 2-3 at columns 14-15). It is

fundamentally achieved by step of **polyamine vulcanization** on molded articles for cross-linking purpose (see Saito at paragraphs 0084-0086; see Kawasaki at columns 11-13).

7. Therefore, Saito and Kawasaki in combination or alone is still silent about **two** things including: **(A) applying the step of immersing the molded article in a specific solvent at 60°C for 70 hours, and (B) the motivation to do so. With respect to the silent (A), a combination of Amin** (116) and **Amin** (107) has taught such a subject matter. For instance, see **Amin** (116) at title; abstract; column 9, line 32-34; Table IV; and also see **Amin** (107) at title; abstract; column 9, line 33-34; Table IV for immersing the molded seal articles in organic solvent such as perfluorotributylamine. By doing so, at least 50% swelling rate is observed.

8. **With respect to the silent (B)** for the need and motivation to achieve such a solvent-treated molded article, **a combination of Kawasaki, Anolick** (905) and **Anolick** (663) has taught such a subject matter. For instance, **Kawasaki** has taught that a sealing material is in nature to be used under hard environment such as chemical, solvent and heat (see column 1, line 24-29). **The leaking of "uncoupled and non-crosslinked" fluoropolymer is certainly undesired**. Both **Anolick** (905) and **Anolick** (663) teach that non-crosslinked fluoropolymers can be readily soluble in perfluorinated solvent such as perfluorotributylamine (see **Anolick** (905) at column 5, line 27-34; see **Anolick** (663) at column 9, line 30-41; column 20, line 37 and 54. **The "pre"-removal of "uncoupled and non-crosslinked" fluoropolymer from the already-molded articles can be achieved effectively**.

9. In light of the fact that all involving references are dealing with making the same or similar perfluoroelastomer sealing material and the leaking of "uncoupled and non-crosslinked" polymer is certainly undesired. Therefore, one having ordinary skill in the art would have found it obvious to modify Saito and Kawasaki's process of making molded sealing articles by **adding the extra step of immersing the already-molded article in a specific solvent such as perfluorotributylamine** as taught by a combination of five references including **Amin** (116), **Amin** (107), **Kawasaki, Anolick** (905) and **Anolick** (663). Therefore, better and more diversified perfluoroelastomeric sealing products without or with less future leaking of uncoupled and non-crosslinked" fluoropolymer may be obtained.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. The following references relate to **a process of making a perfluoroelastomer seal material**. Such a process comprises a step of treating with **a solvent** having at least 50 % of a swelling rate based on said molded article, when said molded article is immersed at 60°C for 70 hours: **US 5,650,472 to Tatemoto** et al. discloses a method of preparing some fluoroelastomer articles such as seal, which is **amine resistant**. It is achieved by curing the obtained copolymer of E/HFP/TFE with some curing agent such as organic peroxide to be with some co-curing agent such as triallyl cyanurate. See column 3, line 55 – column 4, line 12; abstract; column 4, line 31-35. However, **the immersing the molded article with some organic solvent is not disclosed or suggested**. Therefore, **Tatemoto** fails to teach or fairly suggest the current amine-immersing limitation of parent Claim 1.

11. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Dr. Henry S. Hu whose telephone number is (571) 272-1103**. The examiner can be reached on Monday through Friday from 9:00 AM –5:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Vasu Jagannathan, can be reached on (571) 272-1119. The **fax** number for the organization where this application or proceeding is assigned is **(571) 273-8300** for all regular communications. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Peter D. Mulcahy/
Primary Examiner, Art Unit 1796

/Henry S. Hu/
Examiner, Art Unit 1796

July 1, 2009